

We Claim:

1. A suture passer instrument, comprising:

5 a frame having a proximal end and a distal end, said frame having a longitudinal passage;

10 a bottom jaw member mounted to the distal end of the frame, the bottom jaw having a passage for receiving a surgical needle;

15 a top jaw member pivotally mounted to the distal end of the frame such that the top jaw member is moveable with respect to the bottom jaw member, said top jaw member having a distal opening for receiving a cartridge member;

a handle member mounted to the proximal end of the frame, the handle member having a cavity;

20 a jaw actuation member having a top end and a bottom end, wherein the top end of the jaw actuation member is mounted to the handle member;

a needle rod driving trigger member having a top and a bottom, wherein the top of the needle rod driving member is pivotally mounted to the handle member;

25 a jaw actuation rod having a proximal end and a distal end, wherein the jaw actuation rod is slidably mounted in the passage of the frame and wherein the proximal end of the jaw actuation rod engages the top jaw member, and the proximal end of the actuation rod is mounted to the jaw actuation member;

a needle driving rod slidably mounted to the frame, wherein the needle driving member has a proximal end mounted to the needle driving trigger and a distal end for engaging a needle; and,

5 a needle passage in the lower jaw having a distal opening out through the top of the lower jaw and a proximal opening in communication with the longitudinal passage of the frame.

2. The instrument of claim 1 additionally comprising a cartridge member
10 mounted to the top jaw.

3. The instrument of claim 2, wherein the cartridge comprises an opening for receiving at least part of a surgical needle.

15 4. The instrument of claim 2 wherein the cartridge comprises :

a member having a top, a bottom and a cavity extending therethrough;

20 a top flange mounted to the cartridge having an opening in communication with the cavity;

a bottom flange mounted to the bottom of the member having an opening in communication with the cavity; and,

25 at least one needle engagement tab member extending into the cavity.

5. The instrument of claim 1 additionally comprising a surgical needle mounted in the needle passage of the bottom jaw.

6. The instrument of claim 1 additionally containing an opening in the bottom jaw in communication with the needle passage.

7. A suture passer instrument, comprising:

5 a frame having a proximal end and a distal end, said frame having a longitudinal passage;

10 a bottom jaw member mounted to the distal end of the frame, the bottom jaw having a passage for receiving a surgical needle;

15 a top jaw member pivotally mounted to the distal end of the frame such that the top jaw member is moveable with respect to the bottom jaw member, said top jaw member having a distal opening for receiving a cartridge member;

a handle member mounted to the proximal end of the frame, the handle member having a cavity;

20 a jaw actuation member having a top end and a bottom end, wherein the top end of the jaw actuation member is mounted to the handle member;

a needle rod driving trigger member having a top and a bottom, wherein the top of the needle rod driving member is pivotally mounted to the handle member;

25 a jaw actuation rod having a proximal end a distal end, wherein the jaw actuation rod is slidably mounted in the passage of the frame and wherein the proximal end of the jaw actuation rod engages the top jaw member, and the proximal end of the actuation rod is mounted to the jaw actuation member;

a needle driving rod slidably mounted to the frame, wherein the needle driving member has a proximal end mounted to the needle driving trigger and a distal end for engaging a needle;

5 a needle passage in the lower jaw having a distal opening out through the top of the lower jaw and a proximal opening in communication with the longitudinal passage of the frame; and,

10 a cartridge member removably mounted to the top jaw, said cartridge comprising an opening for receiving at least part of a surgical needle.

8. The instrument of claim 7 wherein the cartridge comprises :

15 a member having a top, a bottom and a cavity extending therethrough;

a top flange mounted to the cartridge having an opening in communication with the cavity;

20 a bottom flange mounted to the bottom of the member having an opening in communication with the cavity; and,

at least one needle engagement tab member extending into the cavity.

25 9. The instrument of claim 7 additionally comprising a surgical needle mounted in the needle passage of the bottom jaw.

10. The instrument of claim 7 additionally containing an opening in the bottom jaw in communication with the needle passage.

30 11. A method of passing suture through tissue, the method comprising:

I. providing a suture passer instrument, said instrument comprising:

5 a frame having a proximal end and a distal end, said frame having a longitudinal passage;

10 a bottom jaw member mounted to the distal end of the frame, the bottom jaw having a passage for receiving a surgical needle;

a top jaw member pivotally mounted to the distal end of the frame such that the top jaw member is moveable with respect to the bottom jaw member, said top jaw member having a distal opening for receiving a cartridge member;

15 a handle member mounted to the proximal end of the frame, the handle member having a cavity;

20 a jaw actuation member having a top end and a bottom end, wherein the top end of the jaw actuation member is mounted to the handle member;

a needle rod driving trigger member having a top and a bottom, wherein the top of the needle rod driving member is pivotally mounted to the handle member;

25 a jaw actuation rod having a proximal end a distal end, wherein the jaw actuation rod is slidably mounted in the passage of the frame and wherein the proximal end of the jaw actuation rod engages the top jaw member, and the proximal end of the actuation rod is mounted to the jaw actuation member;

a needle driving rod slidably mounted to the frame, wherein the needle driving member has a proximal end mounted to the needle driving trigger and a distal end for engaging a needle; and,

5 a needle passage in the lower jaw having a distal opening out through the top of the lower jaw and a proximal opening in communication with the longitudinal passage of the frame;

10 II. providing a cartridge member, said cartridge member comprising:

a member having a top, a bottom and a cavity extending therethrough;

15 a top flange mounted to the cartridge having an opening in communication with the cavity;

a bottom flange mounted to the bottom of the member having an opening in communication with the cavity; and,

20 at least one needle engagement tab member extending into the cavity;

25 III. providing a surgical needle having a distal piercing point and a proximal suture mounting end, said needle having a suture mounted to the suture mounting end;

IV. mounting the cartridge member to the top jaw member;

V. mounting the surgical needle in the needle passage of the bottom jaw member;

VI. engaging tissue between the top jaw member and the bottom jaw member; and,

5 VII moving the surgical needle and attached suture through the tissue by engaging the needle with the needle driving rod such that the needle is engaged in the cavity of the cartridge member.

10 12. The method of claim 11 additionally comprising the steps of opening the jaws with respect to each other, moving the instrument away from the tissue, and cutting the engaged needle from the cartridge member.

15 13. The instrument of claim 4 wherein the cavity comprises a distal slot and a proximal opening, and wherein the tab member extends into the slot but does not extend into the proximal opening.

14. The instrument of claim 8 wherein the cavity comprises a distal slot and a proximal opening, and wherein the tab member extends into the slot but does not extend into the proximal opening.